

every puddle or oozing rill, whilst *Colias phicomone* scoured the flower-laden slopes. For an hour we walked round the lake, whilst the sun scorched our faces, and our boxes were filled. Then we lunched by an icy-cold spring, and on again. We calculated whether we ought not to go on through this lovely alpine land, and drop to Disentis, and then go back and find our luggage; but we were getting tired, and the way was long, so we followed the path back again, and rested at Piora, the land of flowers, where one house constitutes the village, and is, in fine weather, a region of loveliness. What it is when the rain-clouds hold it for a week or so at the time, we know not. We caught Piora in its greatest loveliness, and as we left it in the afternoon sunshine, the still lake with hardly a ripple, the patches of snow still on the edge of the pine-woods, and the rushing Fossbach, falling over its rocky terraced bed 100 feet or more into the valley below, we could not help lingering on the Col, and wondering whether it would ever be our happy lot to see this beautiful spot again, isolated among its mountains, surrounded by the grandeur of their pine-covered slopes, nestling among the natural beauties that water and rocks, and flowers bestow. We did not collect as we descended, but we saw the busy natives mowing the steep flower-banks at Brugnasco, and we knew that the entomologist's harvest there had gone for this season at least.

Next morning was again dull and cloudy, and we rested that day, setting our captures and making a few notes. A fortnight of our holiday had passed, and we had much to do. We would leave it to chance. If the next morning should be bright we stayed another day, if not, we moved on to Lugano—chance decreed that we went to Lugano.

Notes on lepidoptera from the Pyrenees—*Cleogene peletieraria* (with seven plates).

By Dr. T. A. CHAPMAN.

One of the characteristic species of the Pyrenees is *Cleogene peletieraria*, this species was only known from the Pyrenees until I took it in 1904 in the Cantabrian mountains. Of course, these ranges of northern Spain are continuations of the Pyrenees, and have a good many features in common.

This year I saw *C. peletieraria* flying freely as I went up to the Col du Riou, and on the slopes some miles further north and a little higher, where I found *Erebia gorgone* common, I met with several ♀s of *E. peletieraria* at rest on grass stems, curiously enough, I did not here see one ♂ on the wing. These ♀s laid a large number of eggs, which duly hatched shortly after my return home. The larvæ fed readily on *Lotus corniculatus* and grew rapidly, and a considerable proportion went right ahead, and the moths emerged in October and November. This enabled me to follow the species right through, which might have been difficult had the larvæ hibernated as they do naturally. There are many lepidoptera that are single- or double-brooded, according to circumstances of locality and climate, but *C. peletieraria* inhabits slopes at such an elevation that it is almost certainly always single-brooded (4500ft.-6000ft.). Unquestionably, my moths emerged when their native slopes would be a hopeless place of residence for the imago. I was, therefore, somewhat surprised to

find such a species so readily agree to be forced forwards and produce an autumn emergence.

I have made some complaint of the lumping of certain *Erebias*, chiefly by Staudinger; in the case of *C. peletieraria* and *C. nivearia*, however, I thought it very probable that his suggestion that they are only forms of one species was correct. The males look very different, one black, the other pure white, but the females are identical. I sent larvæ to Herr G. Höfner at Wolfsberg, where (on the Sau Alpe) *C. nivearia* is often abundant, and where I took it in 1897. Herr Höfner had bred the insect, and was, therefore, a good authority to say whether the larvæ of the two species agreed. Herr Höfner tells me he received the larvæ safely, and gave them fresh food of trefoil and dandelion. They took to the dandelion and fed on it, just as the larvæ of *C. nivearia* did. They were fullgrown and two pupated, mid-October in moss he gave them. A male emerged on November 24th. The larva of *C. nivearia* is brighter, but he cannot detect any decided difference between those of *C. peletieraria* and preserved larvæ of *C. nivearia* in his collection. He thinks that probably Staudinger's suspicion of there being only one species may be correct, but does not like to be positive, not having seen the ♀ of *C. peletieraria*. He philosophises that, if you are ready to let colour go for nothing, then *C. lutearia* would also be merely a form of the same species. It was, therefore, with the expectation of finding the ancillary appendages in the two species practically identical, that I prepared some specimens. The result, however, was to find differences that are no doubt of specific importance, although both are formed on a closely similar design. It will save much time and space in description to show the photographs of the ancillary appendages. It will be seen that, as regards the dorsal element (tegumen), *C. lutearia* and *C. peletieraria* are very similar, *C. nivearia* decidedly different, whilst, as regards the clasps, *C. lutearia* and *C. nivearia* are much alike, whilst *C. peletieraria* has the armature of spines (really apparently very short thick hairs) collected on a decided projection, instead of spread along the harpe. The appendages confirm what we otherwise know, that the three species are very closely allied, but also, I think, confirm the view that they have sufficiently differentiated to be accepted as "good" species.

EGG.—I first made acquaintance with the egg of *C. peletieraria* when some were laid on July 14th, 1904, by a ♀ taken at Pajares (Asturias). I did not, however, rear them. They were large oval eggs about 1.0mm. long, nearly circular in transverse section, the diameters varying only from 0.60mm. to 0.66mm., and possibly due to different sizes of eggs. The colour was nearly white. The sculpturing difficult to see, but consisting of hexagonal netting, the cells of which were about 0.025mm. in diameter. The eggs laid by the Pyrenean moths seemed to be much the same, and I took no description of them, but I have photographs of the empty shells, after the larvæ had hatched, by Mr. F. N. Clark and Mr. Tonge. These indicate that the egg is about 0.9mm. long, that it is somewhat flattened on one side, and that its two shorter diameters are 0.6mm. and 0.7mm. Mr. Clark's photograph, in which the egg is enlarged 100 diameters, shows the sculpturing admirably. A photographer would perhaps complain of this picture as being largely out of

focus owing to the curvature of the surface pictured, this happens, however, to give it additional value. At places it shows the network excellently, at others the fine grain of the shell reminding one of the dotted structure of the egg of *Cyclopides*, and again, just outside the ring of best surface focus, and where the thickness of the shell is in focus, the fine interstitial lines, seen also in "skipper" and various other eggs, marking the points where three cells meet. Mr. Clark has also photographed the micropylar rosette ($\times 250$), showing that, round it, the sculpturing is almost evanescent, although, a little way off, the points (or lines) marking the angles of the cells appear.

The larvæ hatched shortly after I got home in August, and were placed on *Lotus corniculatus*, which seemed to be quite satisfactory to them. I took a description of the living larva on September 20th, when they were full grown in the first instar, and later made a full examination of mounted skins.

LARVA (fullgrown in *first instar*).—The larva was very light griseous at first, is now 4mm. long, a bright reddish-ochreous; the markings are in longitudinal stripes, from yellow to brownish in tint, dorsal line dark, then a broad light stripe with darker middle, then a broad darker stripe with median white line; perhaps better stated as two darker bands divided by a very distinct pale line; there is a broader pale marginal flange stripe, below this darker, divided from the ventral region by a pale line, or rather the ventral region below the marginal pale band, is divided into five equal parts by four pale lines. The darker parts, especially ventrally, are really the more transparent portions of the skin. The larva is certainly not long and slender, nor is it short and stubby. The dimensions are much the same throughout; the incisions marked, but hardly making the segments beaded; the head the same colour as the skin, with large black eyemark; it is still fully half the thickness of the larva in diameter. The tubercles are minute black dots with very short hairs; the anal plate and plates on claspers fuscous; the prothoracic plate is of the colour of larva with a row of four shining brown bristles on the front margin. I have not sufficient knowledge of Geometrid larvæ in their first stage to know which are family, which generic, and which specific, characters; I can, therefore, only describe what I see, without attempting to assign to each character its significance.

The head, 0.4mm. in diameter, has a rough surface, due to a raised pattern, more or less in a minute network, the lines of which are, however, of varying thickness, and, in many places, appear to end by trying to pass under a neighbouring strand. The lines radiate, or, rather, the cells of the network are, in some degree, in lines, radiating from the hairs. Of the hairs, one notes on either side one near the middle line above clypeus, one close to the clypeus, about one-third down it, two others at about equal distances apart in line with the last towards the antennæ, one at almost the centre of the half cranial plate; there is another nearer the vertex, and one or two near the antenna: they are about 0.04mm. in length; each has its definite position. The clypeus has a smoother texture, and has a pair of hairs about the middle, and another lower down, and rather further apart. The jaws have four strong sharp teeth. The antenna has a broad short basal joint, a thick large middle one, with some strong bristles, one so short and thick that it might be regarded as a further joint.

There is a similar thick short process on the second joint like a small duplicate of the third one. There are five large convex eye-corneæ in a semicircle, and another (making six) near its centre. The labrum has the usual kidney-shape (the median notch as the hilum). The prothorax carries a plate, about 0.17mm. long and 0.4mm. broad, oval, but that the posterior margin is nearly straight across; if each half were divided into three equal pieces by two lines, the four hairs on each half would be one towards each end of these lines; they are very short, about 0.025mm., and slightly thickened in the middle. The plate itself is marked by a few lines of raised network. Just beyond the end of the plate, almost attached to it, is a very small dark plate with two minute hairs. The spiracle is just below and some way behind this, there is a solitary longer hair (0.05mm.) some way in front of the spiracle, and a pair below near the leg. The leg itself has a hair or two on its basal plate; the three joints and claws are together about 0.25mm. long. The spiracle itself has a raised convex base with a raised narrow crenate border round the opening. The mesothorax has six (three on each side) very short (about 0.03mm.) hairs, about equally spaced across the dorsum, and just beyond and in front of, and close to, the outer, so close that they form an obvious pair, is a comparatively long (0.13mm.) slender hair; below that a single hair at about the spiracular level, another lower and further back, in line with the two at base of legs (on prothorax); the metathorax is the same as the mesothorax. The 1st abdominal segment has tubercles i well apart, tubercles ii further apart and well back, and iii well down towards spiracle; they are all well apart, and divide the area with fair equality. The spiracle is smaller, but of the same structure as in the prothorax. Just below it are two hairs on a level a good way apart, the front one more in front than the posterior is behind the spiracle; below these a solitary hair (vi), well back, and another nearly ventral. The 2nd abdominal segment differs from the 1st in ii being very near the posterior border of the segment, and being nearer the middle line, very

. i .
sp. o . iii . o

. ii .
FIRST SEGMENT.

. . .
sp. o . . o

. . .
SECOND SEGMENT.

little further out than i, whilst iii is notably further out; iv and v are further back, the spiracle is above a point midway between them, instead of being much nearer the posterior tubercle. Below are tubercles vi, vii, and viii (if the lowest is viii) in a line across segment, about equally apart, vi the largest. On the 3rd, 4th, and 5th abdominal segments, vi is further back, and has another hair behind it, and there is below only vii (or viii); on the 6th iv and v are, one below spiracle and the other behind and at a level midway between the first and the spiracle, and vi and vii are represented by minute hairs most difficult to see. The prolegs of this segment have the appearance of being attached to its posterior border. There is a plate with two hairs, ventral to this a rather large hair with large base, and then the

series of hooks which appear to be attached to an antero-posterior very narrow strip of chitin, which extends beyond them posteriorly; the hooks are an anterior and posterior pair with four or five points between them, the posterior of which, though small, is almost a hook. The posterior prolegs (claspers) have four hooks as an outer or anterior set, and three as an inner, with about seven abortive points between. The 7th abdominal segment has no prolegs, but the hairs are disposed as on the 6th. On the 8th abdominal i and ii are comparatively crowded together, nearly into a square; iv and v are again both below the large spiracle, vi is at posterior border of segment, and vii (?) is below. On the 9th, i is larger, ii wanting, iii well up and forwards; there are three hairs below spiracular level. The 10th abdominal has a large anal plate with four hairs along its posterior border, one on each side, halfway up, and one below this, in from the border, quite on the disc, a total of eight hairs. The claspers have a large plate with seven hairs and a narrow plate with two. The hairs are for the most part very small, with dark round hemispherical bases, transparent, somewhat clubbed, with some spiculation or division as for a glandular opening at the apex, the longer hairs are simple, about 0.02mm.-0.03mm. long., but larger and stronger as we approach the end segment; on the 6th abdominal the longest are perhaps 0.05mm., and on the 9th and 10th about 0.09mm. The skin-surface has a network outlined in fine dots giving polygonal spaces of very varying form, and often being as if the division between several were missing. The hair-bases have processes that radiate into these lines, as if they were starting-points for them, although the skin looks nearly structureless in the line of i and ii, and again of iii, and is well marked out in the intervals (*October 9th, 1907*). *Second instar* (from living larva): Is a straight cylindrical larva that keeps itself straight under all circumstances when at rest; towards next moult 7.0mm. long, 0.8mm. wide, head rather narrower, and flaps of claspers making a little lateral projection. The colour is ochreous-brown, with longitudinal lighter and darker lines; between a double pale dorsal line is a darker shade, intensified into a short, nearly black, streak in the middle of each segment; there is, subdorsally, another fine pale line, and the space between this and the dorsal line presents also a dark mark at the front margin of the segment, then follows a darker space, a pale almost yellow line, then a ground colour space, then a pale yellowish flange line, rather wider than the pale lines above. In the fullfed larva there is no flange projection, but the yellow line (subspiracular) makes the larva, from some points of view, look as if there were one, below the yellow line is a darker band, ventrally again is paler, with two yellow lines. The head, legs, etc., are self-coloured, and no hairs or tubercles are seen with a hand lens. In the second instar, from a mounted skin, the larva is very like the first, but larger. The hairs and tubercles seem to be precisely the same, but with certain additions. The prothoracic plate is now long and square, with four hairs along the front and four across the middle. The hairs are, for the most part, but little larger than in first instar, but the long hairs of the anal plate are about 0.1mm. to 0.12mm. The spiracles have a broader border and smaller opening, and the crenate rim is less evident. The prolegs of the 6th abdominal have three hooks at either end and seven intermediate nodules. The claspers have four hooks at each end,

and fifteen or sixteen intermediate points, on end one or two small but hooklike. There are, compared with the first instar, additional hairs below the spiracles; on the 2nd abdominal there is a hair a long way to front of vi, then vii, viii, and ix in line along zone of segment; on the 4th abdominal segment, the hairs here called vii and viii are at the same level with one called ix, probably viii, below. This continues on the following segments; there can also be seen a very minute hair at front of segment, between i and iii, and another between iii and spiracle. After the second instar the larva has three more moults, and in the third, fourth, and fifth instars differs little, except in size, from its appearance in the second: the markings are, perhaps, more pronounced and darker; the lengths are about 10mm., 14mm., and 20mm. The colours are deep chestnut and black, the markings as described under last instar, and as may be seen in the excellent photograph by Mr. Main. In the last instar, and in some degree in the previous ones, the additional minute hairs noted under the second instar, are more easily seen, as well as the skin sculptures. There are seven tubercles below the spiracle, on either side, on the 1st abdominal segment, two (iv and v), two (vi and ?), and then three in line, but on the 2nd and following segments the second of the three in line has a companion, making eight. The minute points, dorsal and spiracular, are as in the second skin. The skin appears to consist of raised round discs with puckered tissue between (skin-points with round flat tops). The prolegs consist of a straight line, carrying at each end eight hooks alternating smaller and larger, and, between, eight dark points of which the end ones are rods half the length of the hooks. The claspers have ten hooks at each end, and about fourteen points between, similarly slightly advanced towards being hooks at each end. The head, thoracic, and anal plates have a special sculpturing difficult to describe, intermediate patterns between this and the usual skin-pattern occur in places. There are raised ribs, half as broad as the spaces between them, they bend and branch in the most irregular way, branches ending often in hollows between branches of another rib; the spaces between are of most irregular shape, squares, triangles, long zigzagged strips, etc., yet giving the impression they are all of the same size. The jaws have at one end a short sharp tooth, then three long sharp ones, then three each smaller and more rounded than the last, and a portion, nearly straight, twice as long as the last tooth, but suggesting that it also is divided into, or would like to be divided into, continually diminishing teeth. *Fullgrown larva*: On October 11th, one larva has pupated and another has spun up, and a considerable number are in last instar. When fullgrown, the larvæ are 18mm. long. The form, colouring, habits, and attitudes have changed little since the second instar. They rest very stiff and straight along the stem of the plant (*Lotus corniculatus*), with the tips of the legs collected together close to the mouth. They have a very decided subspiracular flange, making the rather broad larva look broader than it really is on a dorsal view. The width of a well-fed specimen is about 2.6mm. If on a small enough stem, the claspers go round it, and the end of the anal plate rests closely on the stem, and that extremity of the larva looks pointed, on a flatter surface the claspers are extended, and make the end look wide. When on the move, it has a curious habit at times of holding by the prolegs, and laterally vibrating the front

portion to and fro. The colours are pale yellow-brown, rich red-brown, and black. The markings are in longitudinal lines. The lateral flange forms a yellowish line, three other yellowish lines occur between this and the dorsum, with wider, darker spaces between, and a narrow dorsal band between the two most dorsal yellow lines. The dorsal band is the narrowest, and the three below it (to the flange line), on either side, are successively rather wider. The dorsal band is red-brown, with black on the middle of the segment, and a smaller black mark at the posterior border. The next (subdorsal) band has rather more black than red-brown, the brown being at middle, the black at margin of segments, with a faint pale line down the middle of the band. The third band is uniformly dark. The fourth and broadest contains the spiracle, is without black, redder at the margins close to the bounding lines, and presents most distinctly what obtains less obviously in all the markings, that they are made up of fine lines and dots, or marblings. Beneath the flange line is a broad, nearly black, band, then a pale fine line, then a broad reddish band, and another pale line, leaving a narrow ventral band, also pale reddish-brown, but with a square black mark in the middle of abdominal segments 2, 3, 4, 5, and 6. These markings continue from the 9th abdominal forwards to the 1st, the spiracular band on the thorax is dark, and tends to fuse with the dark one above it. The anal plate is cinereous, with red-brown dots and margin, the clasper flaps are similar. Head ochreous, with brown markings, small and numerous; eyes quite black, legs same as head; forward prolegs same as the ventral band; spiracles conspicuous black dots; width of head about 1.5mm., the body narrows a little to it from about the 2nd abdominal segment. The abdominal segments have a broad front subsegment, three median narrow ones, and a broad posterior one, which has indications of consisting of two. The lateral flange has marked segmental incisions, and is very distinctly divided into four nearly equal portions by subsegmental incisions on the forward abdominal segments, in the latter into a large front and smaller posterior one. The larva has a habit, when moving, of vibrating to and fro laterally, in a way similar to that seen in Geometers and other larvæ. A ♂ moth emerged to-day (October 27th, 1907), pupated October 11th. There are now eight or nine spun up, and some still feeding, all in last instar (one?). On October 31st, a ♂ emerged; on November 1st, another ♂ emerged.

PUPATION (November 1st): I gave the larvæ for pupating only some bits of filtering paper, several selected, rather than use this, to pull together stems and leaves of foodplant, in two or three instances, when a small plant with its root was afforded, going down amongst the crowded stems close to the root, and here spinning its cocoon; others, however, used the paper; I concluded that any thicket of vegetation close to the ground, whether of living or dead material, would probably be the natural situation of the cocoon. The paper gave, perhaps, the easiest means of observing how the cocoon was constructed. As complete an enclosure as possible was selected, and the open spaces closed by silk, drawn across as an open network, through which the pupa could be seen. When I say network, I mean a tangle of threads which ran together into strands, so as to have many openings, mostly nearly circular, of various sizes up to about 1mm. in diameter, into this network was, however, also worked little bundles of

fibres of the paper, not amounting to bits of papers, but little more than the few fibres one might suppose the larva to pull off as a mouthful. The paper had little or no silk lining, except to attach the covers of openings. The pupa possesses a cremaster, but of such little efficiency that the pupa almost at once comes loose when the cocoon is opened.

PUPA: The pupa is of a rich lively red-brown (a common pale chitinous pupal colour), the anal segment darker, and cremastral spine nearly black; 12.5mm. long, 3.5mm. thick, at the 3rd and 4th abdominal segments. The most marked features of the form of the pupa is one seen in other Geometers, *viz.*, the appearance that the appendages and wings are added to the pupa on the outside, and are not as in *Noctua*, *Notodonta*, etc., worked into the general outline. Thus, seen laterally, the ventral line, where it reaches the end of the wings, antennæ, etc., drops back suddenly to the 5th abdominal segment; again, viewed dorsally, at the end of the wings the pupa suddenly narrows in half the length of the 4th abdominal segment from 3.5mm. to 2.5mm. The metathorax and first four abdominal segments, though normally rounded, lie, as it were, in a trough, the wing margins rising suddenly on either side, *i.e.*, the segments are formed in a circle, 2.5mm. in diameter, the wings are moulded to 3.5mm. Seen dorsally, the pupa is rounded in front, about 3mm. wide at mesothorax, gradually widening to 3.5mm. at the 4th abdominal, 2.5mm. at the 5th abdominal, and tapering to the 9th abdominal, 0.8mm. wide. The dorsum is fairly straight from the mesothorax to where the tail begins to taper. Ventrally, the face projects forward a little at front of mesothorax, the height is 2mm., thence the ventral line has a convex curve to the end of the antenna, 8.2mm. from front. The spiracle of the 2nd and 3rd abdominals, and to a slighter degree of the 4th, have the appearance of having been pushed backwards by the wings, and of having shoved up concentric folds in front of them in this movement. The tips of the maxillæ project about 0.5mm. beyond the wings, and are supported by the antennæ and second legs (and third behind maxillæ?). The second legs are very narrow, ending in a long slender point forwards, and are then shut off from the face by the first legs, which reach within a millimetre of the end of the wings. The wings show the veins markedly as slightly raised lines, and end in a Poulton's line, where there is a sharp angle, the fall from wing to body level being almost entirely in the slope of the strip beyond the line, which is, as usual, unmarked by venation. The antennæ show the pectination well; the cremastral spine is conical, about 0.4mm. long, rugose, with fine wrinklins and ends in two harp-shaped spikes; laterally are three or four, on each side, extremely fine bristles, also S-shaped, so weak and slender that one is not surprised at the slight hold the cremaster takes of the silk of the cocoon.

DEHISCENCE.—The head, head-parts, and legs separate in one piece, but remain attached by some shreds of internal membrane (third legs?) to the 4th abdominal segment. The antennal bases may be slightly separate from the head, and in one specimen one eye-cover has fallen out, and the dorsal headpiece has fallen separate. The prothorax splits dorsally, and each half remains attached to the mesothorax by thin membrane, that often gives way. The mesothorax splits dorsally for about one-third of its length. The ♀ pupa differs from the ♂ in

the body being more robust, and the wings and appendages more level with, and less like, a cloak overlying it. The 8th abdominal segment also has ♀ structure. The corona of the 10th segment and cremaster appear to be identical in both sexes. A ♀ emerged November 21st, 1907.

EXPLANATIONS OF PLATES XI-XVII.

PLATE XI.—FIG. 1.—Empty eggshell ($\times 100$). The varying focus, due to the curvature of the shell, gives the sculpturing as seen at different levels. The centre is almost below the inner surface, round this the hexagonal markings are well shown, outside this they are less distinct, but the black lines or points at the angles appear, a little further out the focus fails.

FIG. 2.—The micropyle ($\times 250$). The transverse lines in middle of figure are merely the result of folding in pressing flat the stiff curved eggshell.

PLATE XII.—FIG. 1.—Eggshells ($\times 30$) are in sufficiently varied positions to indicate the form of the egg, more easy to see than to describe, the sculpturing is also indicated.

FIG. 2.—Proleg of larva in penultimate stage, showing a continuous row of crochets, of which the terminal ones are well-developed, the centre reduced to chitinous nodules.

PLATE XIII.—Left half of prothoracic plate of fullgrown larva. The middle line of plate is near right side of figure, its left margin in front of, and to right of, the spiracle. The size and nature of the hairs are well-shown, and the colouring and sculpturing of the plate are very fairly reproduced.

PLATE XIV.—Three skins of larva in 1st stage and one in 2nd, spread out flat ($\times 15$) to show the disposition of the tubercles.

PLATE XV.—Figs. 1 and 2.—Larva in 3rd instar	} All $\times 2\frac{3}{4}$.
Figs. 3, 4, and 5.—Larva in 4th (last) instar	
Fig. 6.—Skin of larva in 4th (last) instar	
Figs. 7, 8, 9, and 10.—Four views of pupa	

PLATE XVI.—FIG. 1.—End of pupa. Showing crenulations of anterior margin of dorsal aspect of 10th abdominal segment. The reproduction in plate indicates, but hardly shows, the fine spiculation along the margin of the crenulations. The structure of the cremastral armature is well seen. The darker portion of the figure is where, in the irregular breaking of the (brittle) pupa in mounting, two thicknesses of pupa-shell are present.

FIG. 2.—Male ancillary appendages ($\times 30$). Clasps spread to either side in the manner that is most satisfactory in the majority of Noctuids and Geometrids. To be compared with pl. xvii.

PLATE XVII.—Male ancillary appendages of (Fig. 1) *Cleogene lutearia* and (Fig. 2) *C. niveata* ($\times 30$), mounted in the same way as those of *C. peletieraria* (pl. xvi., fig. 2), for comparison. It is remarkable how much more these are alike than *C. peletieraria* is to either.

The lifehistory of *Chattendenia* (*Edwardsia*) w-album.

By A. M. COCHRANE.

The Rev. F. E. Lowe's "Notes on the lifehistory of *Lampides boeticus*" (*antea*, pp. 139 *et seq.*) must give all lepidopterists food for reflection. How truly he says that chance makes some one particular family or species of butterflies, a special favourite with most of us. He has told us that, in his case, it is *Lampides boeticus*; that, so recently as 1899, he wanted information of this species, which was that year breeding freely in the Channel Isles from immigrant parents, that he searched in vain for information through the available literature, and that, to date, no consolidated reliable facts relating to the habits of this species have been available, and now, suddenly, a detailed lifehistory of 50 closely-printed pages (pp. 329-378) is placed at his (and our) disposal, much of it